

Notice of Allowability

Application No.

10/645,425

Examiner

Rip A. Lee

Applicant(s)

DECKERS ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to March 11, 2005.
2. ☒ The allowed claim(s) is/are 1-14 and 28.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 08-10-05.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Anna Lisa Gallo on August 10, 2005 and August 16, 2005.

Specification

page 7, line 5 insert a subscripted numeral " ₂ " in the formula after "Me" as indicated by
the examiner's edit marks; the correct formula will read
"(C₅H₄CMe₂-3,5-Me₂C₆H₃)TiCl₃"

Claim 1

page 2, line 8 insert "or" after the first term "ligand" as indicated
page 2, line 9 delete "and combination thereof,"
page 2, line 12 replace "a" with "an"
page 2, line 12 insert "or a" after the first term "group"
page 2, line 12 delete "and combinations thereof,"
page 2, line 13 insert "a" after "residue,"
page 2, line 14 insert "or a" after "substituted,"
page 3, line 1 replace "a" with "the"
page 3, line 2 replace "olefins" with "olefins"

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Claim 1 (continued)

page 3, line 3 insert after the word "system" the following phrase:
 " , wherein said process is effected at a pressure from 0.2 to 14 MPa"

Claim 2

page 3, line 2 delete " , at a pressure from 0.2 to 14 MPa, "

Claim 4

page 3, line 9 insert "or a" before the term "di-anionic"

page 3, line 9 delete the comma after the word "heteroatoms"

page 3, line 10 delete "and combinations thereof"

Claim 5

page 4, line 5 insert "the group consisting of" before the word "halogen"

Claim 6

page 4, line 1 replace "1" with "5"

Claim 7

page 4, line 1 replace "1" with "5"

page 4, line 2 replace "alkylaryl" with "lower-alkyl-aryl"

page 4, line 2 replace "arylalkyl" with "aryl-lower-alkyl"

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Claim 9

- page 4, line 2 insert a space between “meta-” and “or”
- page 4, line 2 replace “paraposition” with “para-position”
- page 4, line 5 delete “dianionic”
- page 4, line 5 replace “group” with “structure”

Claim 11

- page 5, line 3 replace “within” with “with”

Claim 14

- page 5, line 2 replace “(i-Bu₂Al)₂O” with “(i-Bu₂Al)₂O”

Claim 28

- page 5, line 2 replace “mPa” with “MPa”

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: Claims 1-14 and 28 are allowed over the closest reference, Saßmannshausen *et al.* (*J. Organomet. Chem.*, 1999).

The present invention is drawn to a process for selective trimerization of olefinic compounds comprising the steps of providing a catalyst system, providing olefinic compounds, and trimerizing said olefinic compounds in the presence of said catalyst system, wherein said process is effected at a pressure from 0.2 to 14 MPa. The catalyst system is comprised of an activator and a cyclopentadienyl titanium complex of general formula $(\text{Cp-B(R)}_n\text{Ar})\text{TiR}^1_3$.

Saßmannshausen *et al.* teaches a catalyst prepared from an activator and a monocyclopentadienyl titanium complexes in which the cyclopentadienyl ligand bears an alkylaryl substituent. Representative compounds include $(\text{C}_5\text{H}_5\text{CMe}_2\text{Ph})\text{TiCl}_3$, $(\text{C}_5\text{H}_5\text{CMe}_2\text{Ph})\text{TiMe}_3$, $(\text{C}_5\text{H}_5\text{SiMe}_2\text{Ph})\text{TiCl}_3$, and $(\text{C}_5\text{H}_5\text{SiMe}_2\text{Ph})\text{TiMe}_3$. Catalysts of the invention are shown to be effective in the polymerization of propylene at a pressure of 1 bar (0.1 MPa). The reference does not teach selective trimerization of olefin carried out at a pressure of 0.2 to 14 MPa, as recited in the instant claims. It is deemed that one of ordinary skill in the art would not have found it obvious to arrive at the process described in the application based on the teachings of this journal article.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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The prior art made of record but not relied upon is considered pertinent to the Applicant's disclosure.

Flores *et al.* (*Organometallics*, 1996) discloses a series of monocyclopentadienyl titanium complexes in which the cyclopentadienyl ligand bears an alkylaryl substituent. The compound $(C_5Me_4CH_2CH_2Ph)TiMe_3$ is representative. The catalyst derived therefrom is an active styrene polymerization catalyst.

Lancaster *et al.* (*Organometallics*, 2000) reports the monocyclopentadienyl titanium complex $[C_5H_4B(C_6F_2)_2]TiCl_3$. The catalytic activity of the compound was not investigated.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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August 16, 2005



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